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Re: Application No. 09/887,939

Contents:

A brief on appeal (7 pages)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: C. Marxen et al.

Serial No.: 09/887,939

For: Modeling and Fabrication of Three-dimensional Irregular Surfaces for Hearing Instruments

Filed: June 22, 2001

Group: 2643

Examiner: Suhan Ni

Att'y Dkt.: 2001 P 11061 US

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Joel Miller — Attorney Name
29,955 — Reg. No.

Signature
May 11, 2005 — Date of Signature

Brief on Appeal

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Sir:

This brief is in support of the March 14, 2005 notice of appeal of the final rejection of the claims.

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(i) Real Party in Interest

Siemens Hearing Instruments, Inc., Piscataway, NJ.

(ii) Related Appeals and Interferences

None.

(iii) Status of Claims

Claims 1-15 and 17-28 are pending in this application and stand rejected. Claim 16 has been withdrawn.

The rejection of claims 1-15 and 17-28 are appealed.

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(iv) Status of Amendments

No amendments were submitted after the final rejection.

(v) Summary of the Claimed Subject Matter

This application contains three pending independent claims. All three claims are drawn to a hearing instrument residing at least partly in the ear canal. Such a device must be precisely sized to fit properly and avoid creating discomfort for the user. This is achieved in part by initially creating a virtual or digital representation of the instrument shell and adjusting the fit of the digital representation of the outer surface of the shell in a digital representation of the ear canal.

The basis for the claimed subject matter is set forth in the specification on page 3, line 5, through page 4, line 2; page 4, line 3, through page 5, line 8 (obtaining a digital representation of a portion of the ear canal); page 5, line 9, through page 11, line 6 (creating a digital representation of a shell); and page 14, lines 1-10 (adjusting the fit); the abstract, page 23, lines 5-8; and in Figures 4 and 5 of the drawings.

There are two means-plus-function clauses in the independent claims and they are found in apparatus claim 17:

> means for creating a digital representation of the shell
>
> means for adjusting the fit of the digital representation of the outer surface of the shell in the digital representation of the ear canal

The "means for creating a digital representation of the shell" is identified and described in the specification on page 5, line 9, through page 11, line 6, and in Figure 4 of the drawings. The "means for adjusting the fit" is identified and described in the specification on page 3, line 5, through page 4, line 2; and page 14, lines 1-10; in the abstract, page 23, lines 5-8; and in Figures 4 and 5 of the drawings.

(vi) Grounds of rejection to be reviewed on appeal

Obviousness under 35 U.S.C. § 103(a) in view of U.S. Patent No. 5,487,012 (Topholm et al.) and U.S. Patent No. 6,595,317 (Widmer et al.).

(vii) Argument

The Cited References Fail to Teach All of the Claim Elements

All of the pending claims were rejected under 35 U.S.C. § 103(a) as being obvious in view of Topholm et al. and Widmer et al. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art."

M.P.E.P.§ 2143.03 (8th ed., rev. 2, May 2004), p. 2100-133 [emphasis in original], citing In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Each of the three independent claims contain limitations directed to adjusting the fit of the instrument shell in the ear:

> adjusting the fit of the digital representation of the outer surface of the shell in the digital representation of the ear canal [claim 1]
>
> means for adjusting the fit of the digital representation of the outer surface of the shell in the digital representation of the ear canal [claim 17]
>
> adjusting the fit of the digital representation of the outer surface of the shell in a digital representation of the ear canal [claim 28]

As admitted in the final office action (mailed December 15, 2004; page 2), Topholm et al. does not disclose, teach, or suggest "adjusting the fit of the digital representation of the outer surface of the shell...."

The action goes on to state that "[i]t would have been obvious to one skilled in the art at the time the invention was made to provide one or more suitable component[s] and/or structural element[s], such as a surface vent (31) taught by Widmer et al. ... for further adjusting the digital representation of the outer surface of the shell in the digital representation of the ear canal...." However, the addition of a surface vent or any other such component or structural element to the shell does not adjust the "fit" of the hearing instrument in the ear canal; a vent merely allows the dissipation of air pressure. Thus, Widmer et al. does not cure the deficiency of Topholm et al. Moreover, there is no disclosure, teaching, or suggestion in either reference that would lead one skilled in the art to "adjust[ ] the fit of the digital representation of the outer surface of the shell in ... the ear canal" (or the outer ear).

Lacking all of the claimed elements, the references fail to render the claimed invention obvious.

The Naked Assertion That it Would Have Been Obvious Is Insufficient

Even assuming that the two references could supply all of the limitations of the claims, the bald assertion that "it would have been obvious" to have made the necessary modifications to Topholm et al. in view of Widmer et al. cannot by itself support a finding of obviousness; some suggestion or motivation is required. In re Lee, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002) (Board's affirmance of PTO's unsupported § 103 rejection reversed); M.P.E.P. § 2143.01 (8th ed., rev. 2, May 2004), p. 2100-131, citing In re Mills, 916 F.2d 680, 682, 16 U.S.P.Q.2d 1430, 1432 (Fed. Cir. 1990) ("'[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification,'" quoting In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984)). Thus, absent the suggestion or some objective reason to utilize the structure of Widmer et al. in Topholm et al., as well as to supply the missing elements, the combination is improper and cannot support a finding of obviousness. Ex parte Levengood, 28 U.S.P.Q.2d 1300, 1302 (Bd. Pat. App. & Inter. 1993) ("an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's

invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done").

And, "[t]he level of skill in the art cannot be relied upon to provide the suggestion to combine references." M.P.E.P. § 2143.01 (8th ed., rev. 2, May 2004), p. 2100-129, citing Al-Site Corporation v. VSI International, Inc., 174 F.3d 1308, 1324, 50 U.S.P.Q.2d 1161, 1171 (Fed. Cir. 1999) ("[s]kill in the art does not act as a bridge over gaps in substantive presentation of an obviousness case..."). Thus, the mere recitation that "it would have been obvious to one skilled in the art ..." does not satisfy the requirements of § 103.

Indeed, on this record, the only motivation for making the combination and then supplying the missing elements is found in the claims and it is improper to use the claims in this fashion. M.P.E.P. § 2143 (8th ed., rev. 2, May 2004), p. 2100-129, ("[t]he teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure"); In re Dembiczak, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) ("[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight."); In re Rouffet, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) ("rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be 'an illogical and inappropriate process by which to determine patentability.'").

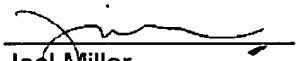
It must be noted again that the combination suggested here is deficient and ineffective as the references, individually and in combination, fail to teach all of the claimed elements. Additionally, there is no suggestion or teaching in either reference to modify either in such a manner that would result in the claimed invention.

Conclusion

Since the references do not render the claims obvious, the claims are allowable over the cited art. The applicants respectfully request that the Board reverse the examiner and direct that the application be passed to allowance.

Dated: May 11, 2005

Respectfully submitted,



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(viii) Claims Appendix

1. A method for fabricating the shell for an in-the-ear hearing apparatus comprising at least one component or structural feature, comprising:

obtaining a digital representation of a portion of the ear canal and/or a portion of the outer ear;

creating a digital representation of a shell conforming to the digital representation of the ear canal and the outer ear as applicable, the step of creating a digital representation of a shell comprising creating a digital representation of an outer surface of the shell; and

adjusting the fit of the digital representation of the outer surface of the shell in the digital representation of the ear canal.

2. A method as set forth in claim 1, where the step of creating a digital representation of the shell comprises reducing the number of points in the digital representation of the shell.

3. A method as set forth in claim 1, where the step of adjusting the fit of the digital representation of the outer surface of the shell comprises expanding, reducing, tapering, or pivoting at least a portion of the digital representation of the shell.

4. A method as set forth in claim 1, where the step of adjusting the fit of the digital representation of the outer surface of the shell comprises dividing the shell into a plurality of segments and expanding, reducing, tapering, or pivoting one or more of the segments.

5. A method as set forth in claim 1, where the step of adjusting the fit of the digital representation of the outer surface of the shell comprises compensating for anatomical irregularities in the outer ear or the ear canal.

6. A method as set forth in claim 1, where the step of adjusting the fit of the digital representation of the outer surface of the shell comprises creating a seamless interface between the shell and a faceplate.

7. A method as set forth in claim 1, where the step of creating a digital representation of the shell comprises creating a faceplate integral with the shell.

8. A method as set forth in claim 1, further comprising positioning one or more components or structural features in or on the shell.

9. A method as set forth in claim 8, further comprising:

reducing the volume of the shell incrementally until at least one of the components in the shell collides with another component or the internal wall of the shell; and

enlarging the volume of the shell until the collision is alleviated.

10. A method as set forth in claim 1, further comprising superpositioning the shell in the ear canal and in the outer ear as applicable.

11. A method as set forth in claim 1, further comprising simulating the insertion of the shell into the outer ear and the ear canal.

12. A method as set forth in claim 1, further comprising fabricating a hearing instrument by direct manufacture.

13. A method as set forth in claim 1, further comprising:
fabricating a hearing instrument from the digital representation of the shell;
fitting the instrument in the user's ear;
generating an identical virtual apparatus; and
in response to the fitting of the instrument in the user's ear, further modifying at least a portion of the outer surface of the shell of the identical virtual apparatus to adjust the fit, comfort, and/or performance of the apparatus.

14. A method as set forth in claim 1, further comprising:
generating an identical virtual apparatus; and
fabricating a hearing instrument.

15. A method as set forth in claim 1, further comprising applying an identifier to the shell.

17. An apparatus for fabricating the shell for an in-the-ear hearing instrument comprising at least one component or structural feature, comprising:
a scanner for obtaining a digital representation of a portion of the ear canal and optionally a portion of the outer ear; and
a processor for creating a digital representation of the shell that conforms to the scanned digital representation of the ear canal and the outer ear as applicable, the processor comprising
means for creating a digital representation of the shell; and
means for adjusting the fit of the digital representation of the outer surface of the shell in the digital representation of the ear canal.

18. An apparatus as set forth in claim 17, where the processor comprises means for reducing the number of points in the digital representation of the shell.

19. An apparatus as set forth in claim 17, where the processor comprises means for expanding, reducing, tapering, or pivoting at least a portion of the shell.

20. An apparatus as set forth in claim 17, where the means modifying at least one physical dimension of at least a portion of the digital representation of the shell comprises means for dividing the shell into a plurality of segments and expanding, reducing, tapering, or pivoting one or more of the segments.

21. An apparatus as set forth in claim 17, further comprising means for fabricating a hearing instrument by rapid prototyping or direct manufacture.

22. A method as set forth in claim 1, where the step of adjusting the fit of the outer surface of the digital representation of the shell comprises modifying at least one physical dimension of the digital representation of the outer surface of the shell.

23. A method as set forth in claim 1, where the step of adjusting the fit of the outer surface of the digital representation of the shell further comprises adjusting the fit of the outer surface of the digital representation of the shell in the digital representation of a portion of the outer ear.

24. A method as set forth in claim 8, further comprising modifying the dimensions and/or position of at least one component or structural feature.

25. An apparatus as set forth in claim 17, where the means for adjusting the fit of the outer surface of the shell comprises means for modifying at least one physical dimension of the digital representation of the outer surface of the shell.

26. An apparatus as set forth in claim 17, where the means for adjusting the fit of the outer surface of the shell further comprises means for adjusting the fit of the outer surface of the digital representation of the shell in the digital representation of a portion of the outer ear.

27. An apparatus as set forth in claim 17, further comprising means for modifying the dimensions and/or position of at least one component or structural feature.

28. A method for adjusting a digital representation for fabricating an in-the-ear hearing apparatus, the apparatus comprising a shell, the shell comprising an outer surface, and at least one component or structural feature, comprising:

adjusting the fit of the digital representation of the outer surface of the shell in a digital representation of the ear canal and the outer ear as applicable.

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Dated: May 11, 2005

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under 37 C.F.R. 1.34(a)